

"Bhatt et al (hereafter Bhatt) discloses, referring to figures 3-5, a printed circuit card comprising a metal layer (wiring layer 306) sandwiched between a pair of dielectric layers (310 & 312), said dielectric layers being formed of a photoimaged cured dielectric material (see the abstract), metalization on each of the first and second layers of the photoimageable material, and metal filled vias (hole 332, only one shown but a plurality referred to) in the first layer of photoimageable material (312) connected to the circuitry and the metal layer, and an opening (hole 328) in the metal layer and in the first and second layers of photoimageable material, the opening being metallized to connect at least a portion of the circuitry on the first layer with a portion of circuitry on the second layer without contacting the metal layer."

First, it should be noted that the Examiner is relying on the feature 306 as the metal layer which is located between a pair of dielectric layers 310 and 312. The Examiner goes on to state that the dielectric layers are formed of a "photoimaged cured dielectric material (see abstract)... " but it is not believed that this is an accurate representation of layers 310 and 312. In the body of the specification, column 3, lines 66-67, it is stated:

"...and three dielectric layers 308, 310, 312. The dielectric layers may be ceramic or organic material."

Moreover, in column 4, lines 39-45, the application states as follows:

"In step 108 holes are drilled into the substrate through the peel apart structure. As shown in FIG. 3, hole 326 extends through the substrate and through both peel apart structures laminated to the surfaces of the substrate. Holes 328, 330, 332 are blind holes or cavities that preferably extend through the peel apart structure and into the substrate to buried wiring layers as shown."

While the abstract does refer to a photoresist layer, it is referred to in the following way:

"A permanent dielectric photoresist layer is formed over the wiring layer and via holes are formed through the photoimageable dielectric over pads and conductors of the wiring layer."

This is described in further detail in the body of the specification, column 6, lines 41-56 as follows:

"In step 130 of FIG. 1(d), a layer of first photoresist is formed over the continuous layer of metal. A liquid precursor may be spun on the surface and cured or more preferably a dry film photoresist 0.1 to 4 mils thick is used. In step 132 the photoresist is exposed to a pattern of electromagnetic radiation or a particle beam. The

radiation may be produced in a pattern using a laser or a source of visible light, UV light, or X-ray which may be directed through a mask to form a pattern. The type of radiation or particle beam depends on equipment availability and the chemistry of the photoresist. In step 134 the photoresist is developed to form a first pattern of photoresist. The pattern covers portions of the metal layer which will form a wiring layer on the surface of the substrate. Other portions of the continuous metal layer are exposed and in step 136, the exposed portions are etched away to form a first wiring layer (signal layer)."

As seen in the flow chart of Figures 1(a), 1(b), 1(c) and 1(d), forming the layer of photoresist and patterning the photoresist is *after* the step of plating the conductive material and copper foil to form a continuous copper layer on the surface. Thus, it is clear that the layers 310 and 312 are not photoimageable materials of cured dielectric material. Clearly, this cannot be if the layers are ceramic, as indicated in the body of the specification, nor in the case of most organics. Therefore, there is nothing in the specification that would teach or suggest that the layers 310 and 312 would be photoimageable dielectric. Indeed, a reading of the specification and how the structure is formed would not lead one to use photoimageable dielectric material since drilling is the method described, which would not be used on photoimageable material. Thus, clearly all the limitations of claim 19 are not found in Bhatt et al.

"A rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference...In addition, the reference must be enabling and describe the applicant's claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the field of the invention." In re Paulsen, 30 F. 3<sup>rd</sup> 1475, 1478 (Fed Cir. 1994) "...invalidity by anticipation requires that the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation." Advanced Display System Inc., v. Kent State University, 54 USPQ2d 1673, 1679 (Fed Cir. 2000).

Thus, claim 19 is clearly allowable over Bhatt et al since the dielectric is specifically defined as photoimageable and in Bhatt et al it is not.

Claim 20 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatt et al. The Examiner admits that Bhatt et al do not disclose the claimed invention with respect to the holes in the dielectric material being photoformed. Indeed, Bhatt et al could not disclose this since there is no disclosure of a photoimageable material for layers 310 and 312, as pointed out above and, thus, they could not be photoformed.

It is not enough that one may modify a reference, but rather it is required that a second reference suggests such modification of the first reference.

The CAFC stated In re Piasecki, 745 F.2d 1468, 223 USPQ 785, 788 (Fed. Cir. 1984) the following:

"The Supreme Court in Graham v. John Deere Co., 383 U.S. 1 (1966), focused on the procedural and evidentiary processes in reaching a conclusion under Section 103. As adapted to ex parte procedure, Graham is interpreted as continuing to place the "burden of proof on the Patent Office which requires it to produce the factual basis for its rejection of an application under sections 102 and 103". Citing In re Warner, 379 F.2d 1011, 1020, 154 USPQ 173, 177 (CCPA 1967)."

The law is quite clear that in order for a claimed invention to be rejected on obviousness, the prior art must suggest the modifications sought to be patented; In re Gordon, 221 U.S.P.Q. 1125, 1127 (CAFC 1984); ACS Hospital System, Inc. v. Montefiore Hospital, 221 U.S.P.Q. 929, 933 (CAFC 1984). The foregoing principle of law has been followed in Aqua-Aerobic Systems, Inc. v. Richards of Rockford, Inc., 1 U.S.P.Q. 2d, 1945 (D.C. Illinois 1986). In the Aqua-Aerobic's case, the Court stated that the fact that a prior reference can be modified to show the claimed invention

does not make the modification obvious unless a prior reference suggests the desirability of the modification.

In In Re Oetiker, 24 U.S.P.Q. 2nd 1443, 1445 (CAFC 1992) held:

"There must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge can not come from the applicant's invention itself."

Most significantly, the CAFC in the recent case of In Re Dembiczak, 50 U.S.P.Q.2<sup>nd</sup> 1614 (CAFC 1999) held at 1617:

"...(examiner can satisfy burden of obviousness in light of combination 'only by showing some objective teaching [leading to the combination]');"

Thus, it is clear that where an individual reference does not teach the entire invention, then the modification which the invention represents must be suggested and motivated by some other reference through some objective teaching and cannot come from the application itself, which is not the case here since there is but one reference cited. Hence, there clearly can be no suggestion of modifications in any way, let alone as suggested by the Examiner.

Since Bhatt et al do not and cannot teach photoforming of the particular layers 310 and 312, which the Examiner states represent the two layers claimed herein, and since in Bhatt et al the holes are clearly not photoformed, Bhatt et al cannot possibly teach the holes therein being photoformed and, thus, claim 20 is clearly allowable over Bhatt et al.

The Examiner further states:

"...it is well settled that the presence of process limitations in product claims, which product does not otherwise distinguish over the prior art, cannot impart patentability to that product (*In re Johnston*, 157 USPQ 670 (1968)...")

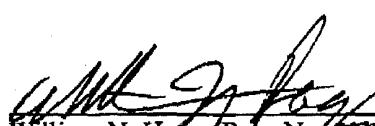
However, it is pointed out that there is not a process limitation in claim 20. The limitation is not to "photoforming" the holes but to the holes being "photoformed". This is a characteristic of the holes and, while a particular process may be used to form them, nevertheless the holes have this

particular characteristic which distinguish them over other types of holes. Thus, it is submitted that this is not a process limitation.

In view of the above, it is believed that each of the claims now in the application is distinguishable one from the other and over the prior art. Therefore, reconsideration and allowance of the claims is respectfully requested.

Respectfully submitted,

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